


37, page 11, lines 9 to 25, page 11, lines 30 to 37, and page 12, lines 1 to 9, as amended. The changes made are shown explicitly in the attached "Version With Markings To Show Changes Made".

Please substitute for the original paragraph on page 1, lines 3 to 6, the following rewritten version of the paragraph on page 1, lines 3 to 6, as amended:

F1 The present invention relates to a sterilizable composite film containing a barrier layer that is impermeable for water vapor and gases, comprising a metal foil and on both sides of the barrier layer at least one functional layer; the invention also embraces the use of the composite film.

Please substitute for the original paragraph on page 1, lines 8 to 18, the following rewritten version of the paragraph on page 1, lines 8 to 18, as amended:

Known are sterilizable composite films, e.g., those employed in the manufacture of pouches for packaging foodstuffs for human and animal consumption. For example composites of plastic films or plastic laminates and a barrier layer impervious to water vapor and gases in the form of a metal foil are processed into pouches by stamping or cutting and/or folding and sealing. Exemplary for such a composite film is a four layer composite containing one after another, e.g., a polyester film, an aluminum foil, an oriented polyamide film and a polypropylene film. The polyester film provides the strength, the polyamide film acts supportively in the composite and the generally relatively thick polypropylene film improves the resistance to penetration and can be sealed.


 Each of the four layers is joined to the neighboring layers by means of an adhesive and, in some cases by an additional bonding agent and/or primer.

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Please substitute for the original paragraph on page 1, line 30, to page 2, line 2, the following rewritten version of the paragraph on page 1, line 30, to page 2, line 2, as amended:

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That objective is achieved by way of the invention in that the composite film exhibits a layer structure containing one over the other or one after the other:

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- a) a first functional layer containing a plastic film of the polyester, polyamide or polyolefin type or an extrusion layer of polyolefins or one or more lacquer layers or print and lacquer layers or print layers, and
  - b) a metal foil, and
  - c) a second functional layer in the form of a plastic film of the coextrusion coated, coextruded and/or extrusion laminated polyamide/polypropylene film type.
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Please substitute for the original paragraph on page 2, lines 4 to 10, the following rewritten version of the paragraph on page 2, lines 4 to 10, as amended:


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Preferred are sterilizable composite films that exhibit a layer structure containing one after the other:


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- a) a plastic film of the polyester type, and
  - b) a metal foil, and
  - c) a plastic film of the coextrusion coated, coextruded and/or extrusion laminated polyamide/polypropylene type of film.
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Please substitute for the original paragraph on page 2, lines 12 to 18, the following rewritten version of the paragraph on page 2, lines 12 to 18, as amended:

Further preferred sterilizable composite films according to the present invention are such containing one after the other:

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- a) one or more lacquer layers or print and lacquer layers or print layers, and
  - b) a metal foil, and
  - c) a plastic film of the coextrusion coated, coextruded and/or extrusion laminated polyamide/polypropylene type of film.

Please substitute for the original paragraph on page 2, lines 23 to 27, the following rewritten version of the paragraph on page 2, lines 23 to 27, as amended:



The metal foil may be of steel, iron or copper and is preferably an aluminum foil. The aluminum foil may be of pure aluminum or usefully an aluminum alloy of the type AlMn, AlFeMn, such as, AlFe1.5Mn, AlFeSi or AlFeSiMn, for example having a purity of 97.5% and higher, preferably 98.5% and higher. The metal foil is preferably an uninterrupted foil, which should also be texture free and homogeneous.

Please substitute for the original paragraph on page 6, lines 24 and 25, the following rewritten version of the paragraph on page 6, lines 24 and 25, as amended:

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The films of coextruded polyamide/polypropylene may be nonstretched or may be uniaxially or biaxially oriented.

Please cancel the original paragraph on page 6, line 35.

Please substitute for the original paragraph on page 7, lines 1 and 2, the following rewritten version of the paragraph on page 7, lines 1 and 2, as amended:

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The composite films here may be sealed by means of the outer lying polypropylene layer of the coextruded film.

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Please substitute for the original version paragraph on page 8, lines 9 to 16, the following rewritten version of the paragraph on page 8, lines 9 to 16, as amended:

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The surface of the metal foil may provide better adhesion properties for the adhesive or lacquer or for an extrusion layer by an appropriate pretreatment (e.g., brushing, chromate treatment, ionizing treatment, or treatment with ozone, flame or plasma). In order to assist and improve the bonding of the lacquer, bonding agents or laminate adhesives between the plastic films or the bonding of extruded layers, it is often useful to provide the film with adequate surface tension on the side facing the adhesive of the extrudate. The increase in surface tension may be achieved advantageously by an ionizing, ozone, plasma, flame or corona pretreatment.

Please substitute for the original paragraph on page 8, line 32, to page 9, line 5, the following rewritten version of the paragraph on page 8, line 32, to page 9, line 5, as amended:

Protective coatings, precoatings, print materials and if necessary covering layers that come into question are, e.g.:

Systems based on solvents (1) or systems with water as solvent (2) or systems that are dried or hardened by ultraviolet or another form of radiation (3). The lacquer precoatings or covering layers (1) dissolved in solvents may be lacquer coatings with binding agent based on polyacrylate, polymethylacrylate, polyester, epoxide, cellulose nitrate, polyvinylchloride-acetate, polyvinylbutyral or mixtures of these binding agents, hardened with melaminic resins, ureic resins, polyisocyanates, polyazirides or mixtures of these, if desired used along with acids, amines, calcium compounds, tin compounds as hardening accelerators and silanes, titanium or zirconium chelates as additives to promote bonding.

Please substitute for the original paragraph on page 9, lines 10 to 16, the following rewritten version of the paragraph on page 9, lines 10 to 16, as amended:

Aqueous systems (2) contain additionally tensides in order to ensure solubility. Use may be made of printing materials and covering layers (3) hardening under the influence of ultraviolet and other forms of radiation may be radical crosslinking printing materials and covering lacquer layers based on acrylates on conventional precoatings, as described above, printing materials that crosslink by a cationic mechanism, as described above, print precoating lacquers or UV- or radiation-hardening lacquer precoatings that crosslink by a cationic mechanism.

Please substitute for the original paragraph on page 9, line 22, to page 10, line 4, the following rewritten version of the paragraph on page 9, line 22, to page 10, line 4, as amended:

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If in addition to the lacquer coating or coatings or extrusion coatings, print layers or print layers alone are employed, then the printing of the composite film may be carried out using all known methods, e.g., typographic, offset, flexo, screen, helio, and copper gravure printing. The choice of printing method to be employed depends on the desired quality of print, the prevailing technical aspects and on the number to be printed. It is possible to deposit single or multi-colored layers of print on part or the whole of the surface area. Preferred is flexo-printing (also known as aniline or offset printing) and screen printing such as copper gravure printing, or helio-printing. The printing lies on the outward facing side of the composite material and, e.g., in addition may have an overcoat of at least one further lacquer coating. For example, one, two, three or more lacquer coatings may be employed, the first lacquer coating lying on the metal foil or the pretreated metal foil. In another version the printing may be deposited directly on the metal foil and if desired be covered by one, two, three or more lacquered layers. The last mentioned lacquer layers are, advantageously, transparent or translucent and act as protection for the printing. The printing may also be performed in several steps and at least one print layer covers the whole surface with the result that this total surface print layer or layers acts/act as a protective layer or layers. In another version the foil or pretreated metal foil may have an overcoat of one or more lacquer layers. On top of this lacquer layer or

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layers comes whole area or partial area single or multi-colored printing, which in some cases may be covered over with one or more lacquer layers, in particular transparent or translucent lacquer layers.

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Please substitute for the original paragraph on page 10, lines 34 to 37, the following rewritten version of the paragraph on page 10, lines 34 to 37, as amended:

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Another manner of manufacture may be such that, e.g., a first coextrudate of bonding agent and polyamide is deposited on one side of the metal foil and a second coextrudate of bonding agent and polypropylene is deposited on the free side of the polyamide, whereby the polypropylene then forms the free outer side.

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Please substitute for the original paragraph on page 11, lines ~~9~~ to 25, the following rewritten version of the paragraph on page 11, lines 9 to 25, as amended:

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The present invention also relates to pouch type forms of packaging of a sterilizable composite film according to the present invention. Pouch type forms of packaging may be made, e.g., from a piece of composite material by folding and sealing, or from two side pieces of the said composite material by - if desired folding and - sealing, or from a plurality of side pieces of the composite material by - if desired folding and - sealing. Typical pouches are flat pouches, self-standing pouches, pouches sealed at the edges, pouches of given volume, self-standing pouches of given volume, side-seam flat pouches, rigid-base pouches, or bags such as welded flat or folded bags, etc. The pouch-type forms of packaging may be employed for contents such as foodstuffs for human

consumption or for animals or for semi-luxury items of all which may be in lump form, or in pulpy, pasty, semi-fluid or fluid form. Other examples of applications for such pouches are cosmetics or substances for personal hygiene in pasty to fluid form. Other examples are pharmaceutical products or preparations for remedial purposes. The composite films according to the present invention can be sterilized without suffering delamination of the individual layers or loss of strength, e.g., by a thermal treatment at 110 to 130°C, preferably 121°C, for 10 to 60 minutes, preferably 30 minutes.

Please substitute for the original paragraph on page 11, lines 30 to 37, the following rewritten version of the paragraph on page 11, lines 30 to 37, as amended:

The composite film shown in figure 1 features a metal foil 1. Laminate coated onto one side of the metal foil 1, by means of the laminate adhesive 7, is the first functional layer e.g. in the form of a PETP film 5. By way of an example the PETP film 5 bears a counter-print 6. On the other side of the metal foil 1 is the second functional layer 2 in the form of a coextrusion film comprising polyamide 3 and polypropylene 4, laminate bonded to the metal foil 1 by means of a laminate adhesive 8. When the composite film is in use, the polypropylene 4 of the coextruded film 2 faces the contents of the packaging made from the composite film.

Please substitute for the original paragraph on page 12, lines 1 to 9, the following rewritten version of the paragraph on page 12, lines 1 to 9, as amended:



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The composite film shown in figure 2 features a metal foil 1. On one side of the metal foil 1 is the first functional layer in the form of print and lacquer layers. Directly on the metal foil 1 is a precoating of lacquer 9, on top of this the surface print 10 and finally the protective lacquer 11. On the other side of the metal foil 1 is the second functional layer 2 in the form of a coextrusion film of polyamide 3 and polypropylene 4 laminate bonded to the foil 1 by means of a laminate adhesive 8. Also in this application of the composite film the polypropylene 4 of the coextrudate 2 faces the contents of the packaging made from the composite film.